

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

Title V/Synthetic Minor Permit Modification No. V-03-017 (Revision 2)

LOGAN ALUMINUM, INC.

RUSSELLVILLE, KENTUCKY

February 03, 2006

HOSSEIN RAKHSHAN, REVIEWER

Plant I.D. # 21-141-00038

Application Log # 56103/APE20050002

AI#64664

**Change(s) to Permit (Revision 2):**

On November 30, 2005 Logan submitted an application to modify its existing permit #V-03-017. The proposed modification includes an increase in the process rates for coating line 1[09(6020-A)] from the currently permitted 23750 lbs/hr to 26000 lbs/hr (94299tons/yr to 103233 tons/yr). Logan will not exceed the annual tons per year limit of 95,000 and only needs some flexibility in the hourly limit. This change will not trigger PSD review as the annual emissions will remain the same.

In performing this review, no permit conditions (except for the requested modification) were changed in any substantive way. All previously reviewed operating, emission, monitoring and record keeping requirements have been maintained.

**Emissions Unit: 09 (6020-A)      Coating Line 1**

**Operating Limitation (Revision 2):**

- a. Total aluminum processed shall not exceed 26000lbs/hr and 95000 tons/yr.

**SOURCE DESCRIPTION:**

Logan Aluminum is a secondary aluminum processing facility located in Russellville, KY. The plant produces rolled aluminum from recycled scrap and aluminum sows/pigs. Scrap aluminum is scalped, melted and refined with additional sows/pigs in several Group 1 and Group 2 furnaces. After processing, molten aluminum is cast into ingots that are then pre-heated, rolled, pretreated and finally coated before shipping to customers.

Logan submitted an application to modify its existing permit # V-03-017. The proposed modifications include an increase the process rates for Coating Line 1 [09 (6020-A)] and the Reversing Mill [07 (2015-1)]. With this permit revision, Logan has taken limits to preclude PSD applicability.

In performing this review, the Division found several administrative errors and inconsistencies throughout the rest of the permit. In light of this discovery, the permit was

reorganized and reformatted to make it more consistent, readable and accurate. In the resulting permit, no permit conditions (except for the requested modifications) were changed in any substantive way. All previously reviewed operating, emission, monitoring and record keeping requirements have been maintained.

**CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations

**I. CHANGES TO SECTION B****1. GROUP REQUIREMENTS: Scalping, Sorting and Conveying**

<b>Unit ID#</b>	<b>Unit Name</b>
05 (2005-1A-C)	Scalper 1 w/Cyclones 1-3
25 (1009-1)	Swarf Furnace Chip Conveyor

The units listed above have the same regulatory requirements and were combined under a common functional group. With the exception of formatting changes, the units remain unchanged.

**2. Emissions Unit: 44 (1003-1) Sow Dryer**

With the exception of formatting changes, this unit remains unchanged.

**3. Emission unit: 26 (1009-1A-C) Swarf Furnace with Molten Metal Holder**

Previously, emission limits and compliance demonstrations pursuant to 40 CFR Part 63 Subpart RRR were incorrectly described in the permit. With the exception of these corrections and formatting changes, this unit remains unchanged.

**4. Emission Unit: 55 (1111-1) Electric Induction Furnace**

Under **1. Operating Limitations**, Logan will now be required to charge only clean scrap to the Electric Induction Furnace. As described in their application, Logan plans to melt uncoated/unpainted/unlubricated edge trim material that is scrapped from their rolling process. This material meets the definition of runaround scrap: scrap materials generated on-site by aluminum casting, extruding, rolling, scalping, forming/stamping, cutting, and trimming operations and that do not contain paint or solid coatings. Runaround scrap is included in the list of clean charge material in 40 CFR 63, Subpart RRR. With the exception of these requested modifications and formatting changes, this unit remains unchanged.

**5. Emissions unit: 27 (1008-1) Reservoir Furnace**

With the exception of formatting changes, this unit remains unchanged.

**I. CHANGES TO SECTION B****6. GROUP REQUIREMENTS: Direct Chill Lines DC1-DC3 – Pre-Heaters & Melt Furnaces**

Unit ID#	Unit Name
02 (1005-1A&B)	DC1 Pre-Heater and Melt Furnace (East)
03 (1005-4A&B)	DC2 Pre-Heater and Melt Furnace (West)
40 (1006-2)	DC3 Melt Furnace

The units listed above have the same regulatory requirements and were combined under a common functional group. With the exception of formatting changes, these units remain unchanged.

**7. GROUP REQUIREMENTS: Direct Chill Lines DC1-DC3 – Holding Furnaces**

Unit ID#	Unit Name
04 (1005-2)	DC1 Hold Furnace (East)
17 (1005-5)	DC2 Hold Furnace (West)
42 (1006-2)	DC3 Hold Furnace

The units listed above have the same regulatory requirements and were combined under a common functional group. Previously, emission limits and compliance demonstrations pursuant to 40 CFR Part 63 Subpart RRR were incorrectly described in the permit. With the exception of these corrections and formatting changes, this unit remains unchanged.

**8. GROUP REQUIREMENTS: Direct Chill Lines DC1-DC3 – Flux Boxes**

Unit ID#	Unit Name
22 (1001-1)	DC1 Flux Box
22 (1001-1)	DC2 Flux Box
22 (1001-1)	DC3 Flux Box

The units listed above have the same regulatory requirements and were combined under a common functional group. Previously, emission limits and compliance demonstrations pursuant to 40 CFR Part 63 Subpart RRR were incorrectly described in the permit. With the exception of these corrections and formatting changes, this unit remains unchanged.

**9. Emission Unit: 01 (1002-1) Aluminum Skimming House**

**I. CHANGES TO SECTION B**

With the exception of formatting changes, this unit remains unchanged.

**10. GROUP REQUIREMENTS: Carbottom & Pusher Furnaces**

<b>Unit ID#</b>	<b>Unit Name</b>
06 (2010-A&B)	Carbottom Furnaces 1 - 7
18 (2011-A)	Pusher Furnaces 1 and 2
19 (2011-B)	Pusher Furnace 3

The units listed above have the same regulatory requirements and were combined under a common functional group. With the exception of formatting changes, these units remain unchanged.

**11. GROUP REQUIREMENTS: Reversing & Finishing Mill**

<b>Unit ID#</b>	<b>Unit Name</b>
07 (2015-1)	Reversing Mill
08 (2015-2)	Finishing Mill

- a. Total aluminum throughputs for the Reversing Mill have been changed from 375,000 lbs/hr to 400,000 lbs/hr; annual throughputs remain at 1,481,250 tons/yr.
- b. Total severely hydrotreated mineral oil coolant usage for the Reversing Mill remains at the currently permitted 11,566 gals/month and 138,672 gals/yr.
- c. There are 2 oils used as coolant in the Reversing Mill: Sunpar 2280 (primary oil) and Sunpar 150 (secondary oil). Degradation of the oils is the source of pollutant emissions whereas the milling of the aluminum sheet produces negligible emissions. Therefore, the hourly PM emission limitation has been changed to 2.34 lbs/hr to reflect oil usage as opposed to aluminum throughput. The new allowable emission rate is based on 138,672 gals/yr of severely hydrotreated mineral oil process weight and 7941 hrs/yr.
- d. Although the basis for calculating particulate emissions has changed, there is no increase in the pollutants emission since the severely hydrotreated mineral oil usage rate remains unchanged.
- e. To demonstrate compliance, the overall control efficiency at the Reversing Mill (72%) is obtained by multiplying capture efficiency (90%) with control device efficiency (80%).
- f. The units listed above have the same regulatory requirements and were combined under a

**I. CHANGES TO SECTION B**

common functional group. Previously, emission limits and compliance demonstrations to preclude PSD applicability were incorrectly described in the permit. With the exception of these requested modifications, corrections and formatting changes, these units remain unchanged.

**12. GROUP REQUIREMENTS: Cold Mills**

<b>Unit ID#</b>	<b>Unit Name</b>
10 (3005-1)	Cold Mill 1
14 (3010-1)	Cold Mill 2
21 (3040-1A)	Cold Mill 3

The units listed above have the same regulatory requirements and were combined under a common functional group. With the exception of formatting changes, these units remain unchanged.

**13. Emission Unit: 12 (3030-A,B,C,D) Annealing Furnaces 1, 2, 3, 4, and 5**

With the exception of formatting changes, this unit remains unchanged.

**14. Emissions Unit: 53 (4022-5) Parts Washer – Cold Mill 3 Area**

With the exception of formatting changes, this unit remains unchanged.

**15. Emissions Unit: 09 (6020-A) Coating Line 1**

- a. 40 CFR 63, Subpart SSSS, National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil is applicable and has been added to the permit. The compliance date is June 10, 2005.
- b. Logan requested an increase in aluminum throughput from the currently permitted 19,000 lbs/hr to 23,750 lbs/hr (75,440 tons/yr to 95,000 tons/yr).
- c. Logan requested an increase in coating application rate from 1,870,000 gals/yr to 2,125,000 gals/yr.
- d. The work practice standard of shutting mix room doors at all times to prevent MEK from escaping into ambient air has been added.

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- e. On May 27, 2004, Logan Aluminum performed a stack test to demonstrate compliance with the HAP emission standards required by 40 CFR 63 Subpart SSSS. Prior to this test, the incinerator was permitted to operate at or above 1450°F. During this test, however, Logan demonstrated that lowering the incinerator temperature did not significantly affect the VOC/organic HAP emission rate. Subpart SSSS requires 98% organic HAP destruction; during the May test, Logan showed that this could still be achieved at incinerator temperatures of 1308°F (708°C) and 1166°F (630°C) for solvent and water-based coatings respectively. The current permit has been changed to reflect this as a new operating condition.
- f. Applicable operating limitations from 40 CFR 63, Subpart SSSS have been added.
- g. To preclude PSD applicability, the total VOC emissions increase from modifications to the pretreatment line and coating line 1 shall be less than 40 tons/yr for coating applied in excess of the original limit. For any 12-month period, total coating (as applied) and MEK (in the coating room) usage that exceed 1,870,000 gallons and 34,419 gallons respectively shall be considered in the plant-wide VOC emissions increase calculation for this modification.
- h. The previous compliance demonstration method did not represent true, worst-case VOC and MEK emissions from the unit. The new compliance demonstration method included in this revision will more accurately reflect actual VOC emissions. MEK emissions from the mix room are negligible as long as the room doors remain shut at all times.
- i. Provisions have been added requiring each coil coating affected source to limit organic HAP emissions to no more than 2% of the organic HAP applied for each month during the 12-month rolling compliance period (98% reduction) [40 CFR 63.5120(a)(1)].
- j. To demonstrate continuous compliance with the 98% reduction in organic HAP emissions, the permittee shall maintain the incinerator combustion temperature above what's specified in the permit and demonstrate overall control efficiency is ≥ 99% during any required stack test.
- k. VOC emissions from Coating Line 1 shall be controlled to less than 10% of the VOCs applied each month [40 CFR 60.462(a)(3)]. Since the HAP emission limitation is more stringent than the VOC's, compliance with the HAP limitation is deemed compliance with the VOC limitation.
- l. The particulate matter pounds per hour emission limitation has been revised from 14.5 lbs/hr to 3.99 lbs/hr. The 14.5 lbs/hr limitation was incorrectly based on 19,000 lbs/hr of aluminum throughput. The process weight is defined as the total weight of all materials introduced into any affected facility which may cause any emission of particulate matter, but does not include liquid as well as gaseous fuels charges,

**I. CHANGES TO SECTION B**

combustion air, or combined water. Thus, the process weight should be based on the hourly coating (as applied) usage.

- m. To preclude the applicability of PSD, the Particulate Matter emission increase from the coating line shall not exceed 15 tons/yr.
- n. The increase of aluminum throughput will not affect other emission sources in the plant.
- o. Tests required by 40 CFR 63, Subpart SSSS have been added into the permit.
- p. The Division requires that Logan Aluminum conduct a performance test on their roll coating operation to determine the transfer efficiency. Typically, roll coating has a transfer efficiency of at least 95%, but to better account for the PM emissions from the coating line, accurate transfer efficiency is needed. It is also needed to ensure that Logan Aluminum meets the 15 tons/yr PM emission increase limitation on their coating line.
- q. The Division requires that Logan Aluminum monitor the incinerator residence time and the roll coating transfer efficiency. In addition to the incinerator combustion temperature, residence time is vital to the VOC emissions removal.
- r. Recordkeeping required by 40 CFR 63, Subpart SSSS has been added to the permit.
- s. Reporting required by 40 CFR 63, Subpart SSSS has been added to the permit.

**16. GROUP REQUIREMENTS: Boilers**

<b>Unit ID#</b>	<b>Unit Name</b>	<b>Primary Fuel</b>	<b>Secondary Fuels</b>
15 (4021-A)	Boiler #1	Natural Gas	#2 fuel oil & propane
15 (4021-A)	Boiler #2	Natural Gas	#2 fuel oil & propane
15 (4021-A)	Boiler #3	Natural Gas	#2 fuel oil & propane
54 (4021-B)	Boiler #4	#2 fuel oil	Natural gas & propane

The units listed above have the same regulatory requirements and were combined under a common functional group. With the exception of formatting changes, these units remain unchanged.

**I. CHANGES TO SECTION B****17. Emissions Unit: 46 (4021-5) Propane Flare**

With the exception of formatting changes, this unit remains unchanged.

**18. Emissions Units: 49 (4021-11) Cooling Tower 1**

With the exception of formatting changes, this unit remains unchanged.

**19. Emissions Unit: 47 (4021-6) Propane Tanks 1, 2, 3, and 4**

With the exception of formatting changes, this unit remains unchanged.

**20. GROUP REQUIREMENTS: Volatile Organic Storage Tanks**

Unit ID#	Unit Name
24 (3040-5)	Cold Mill 3 Tanks TA01, TA02, TA05
45 (1004-1)	Castor Oil Tank
48 (4021-10)	Water Services Tanks 4, 6A
48 (4021-10)	Water Services Tanks 6B, 8
51 (6035-A)	Coating Tanks A, B, and C

The units listed above have the same regulatory requirements and were combined under a common functional group. With the exception of formatting changes, these units remain unchanged.

**21. GROUP REQUIREMENTS: Liquid Petroleum Storage Tanks**

Unit ID#	Unit Name
50 (4021-15)	Gasoline Tank
50 (4021-15)	Diesel Tank
52 (6035-3)	Waste Solvent Tank 3

The units listed above have the same regulatory requirements and were combined under a common functional group. With the exception of formatting changes, these units remain unchanged.

**I. CHANGES TO SECTION B**

22. **GROUP REQUIREMENTS:** Plant-wide emissions of aluminum metal and oxide, arsenic, cadmium, chromium metal, cobalt, copper, formaldehyde, hydrogen chloride, and selenium are subject to Regulation 401 KAR 63:022. The following units are affected:

Unit ID#	Unit Name
01 (1002-1)	Aluminum Skimming House
02 (1005-1A&B)	DC1 Pre-Heater and Melt Furnace (East)
03 (1005-4A&B)	DC2 Pre-Heater and Melt Furnace (West)
04 (1005-2)	DC1 Hold Furnace (East)
06 (2010-A&B)	Carbottom Furnaces 1 - 7
07 (2015-1)	Reversing Mill
08 (2015-2)	Finishing Mill
09 (6020-A)	Coating Line 1
10 (3005-1)	Cold Mill 1
14 (3010-1)	Cold Mill 2
17 (1005-5)	DC2 Hold Furnace (West)
18 (2011-A)	Pusher Furnaces 1 and 2
19 (2011-B)	Pusher Furnace 3
21 (3040-1A)	Cold Mill 3
22 (1001-1)	DC Flux Boxes
24 (3040-5)	Cold Mill 3 Tanks TA01, TA02, TA05
25 (1009-1)	Storage Silos & Conveyer
26 (1009-1A-C)	Swarf Furnace with Molten Metal Holder
27 (1008-1)	Reservoir Furnace
40 (1006-2)	DC3 Melt Furnace
42 (1006-2)	DC3 Hold Furnace
45 (1004-1)	Castor Oil Tank
48 (4021-10)	Water Services Tanks 4, 6A
51 (6035-A)	Coating Tanks A, B, and C
55 (1111-1)	Electric Induction Furnace

In reviewing the permit, several discrepancies were found between the emission points listed under this group requirement and references to this group under the individual units. The shaded units referenced this group requirement under their individual requirements but were not previously listed.

## II. CHANGES TO SECTION D

1. **SECTION D** was re-formatted to match **SECTION B** requirements.
2. Since several of the emission units have the same compliance demonstrations for operating and emission limits, these equations were moved to **SECTION D** and standardized. Specifically, see **SECTION D (1) (b), (c), (d)** and **SECTION D (2) (c), (f), (g)**.
3. Previously, SAPU emission limits and compliance demonstrations pursuant to 40 CFR Part 63 Subpart RRR were listed with individual units. These requirements, being the same for all units within a SAPU, were removed from the individual units to **SECTION D**. In addition, the language for these requirements was changed to be more concise and readable.
4. With the exception of these requested modifications, corrections and formatting changes, the requirements in this section remain unchanged.